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ABSTRACT

Yale University's on-line examination of accounting and administrative systems is discussed. Program goals are to review financial management systems at the university to identify weaknesses in internal controls, and to fulfill all audit requirements of federal grants and contracts. After outlining the quarterly audit cycle, advantages of the following features of the Yale approach are identified: current transactions are audited; auditing is performed by the university audit staff; the effort is directed by an oversight committee made up of representatives of the university, the federal government, and the university's public accounting firm; external auditors supplement the examination with work they perform during their annual financial statement audit; the university develops its own specially tailored audit programs to focus greater attention on the areas of potential risk; and an indepth review of each system that controls sponsored projects is conducted. Administrative and financial controls are identified, along with indirect costs. Benefits in the first year on the on-line audit approach and the future of the project are discussed. It it noted that the experimental audit at the university has demonstrated the importance of coordinating external, internal, and government auditing sources in total. Information on General Accounting Office standards for audit is included. (SW)

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Yale University

The On-Line Audit Revisited

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by ALBERT R. WELDON, JR., EDWARD M. PARIGIAN, and ROBERT FORRESTER

HE 017 372

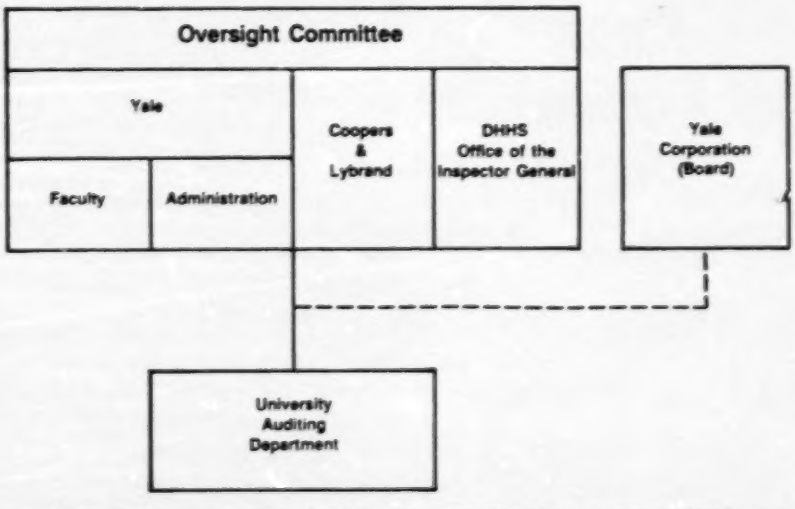
Yale University's financial management has turned to an on-line examination of accounting and administrative systems that could serve as a model for internal audit participation in single audits around the country. Since July 1982 the institution's audit staff has been examining federally sponsored activity. Their work is coordinated with the annual examination by external auditors. The CPA does not take responsibility for the internal auditors' A-110 review; instead, reports on both the internal and external audits are submitted to an oversight committee that meets quarterly (see Exhibit 1) and, after that committee's approval, to the cognizant audit agency, the Department of Health and Human Services (HHS). During its first year the Yale audit was funded by a federal contract that provides both the government and the university community with an efficient, low-cost means of establishing accountability for federally sponsored projects.

The major goal of the on-line program is to review financial management systems at Yale in sufficient detail to identify any potential weaknesses in internal controls. Another objective is to fulfill all audit requirements of federal grants and contracts—including direct cost audits, indirect cost audits, systems reviews, cash management audits, and financial aid audits. If any weaknesses are identified, university officials consider corrective action to assure immediately that federal accounts are not charged improperly.

The Audit Cycle. The university carries out its on-line audit in the quarterly cycle shown in Exhibit 2. In the first quarter university auditing reviews the design of a particular system, with reference to risk questionnaires and internal control guidelines prepared with the assistance of HHS and the external auditors. In developing their plan, university auditing divided the major financial processes or procedures into three groups, as shown in Exhibit 3. After the systems are reviewed, university auditing prepares a draft audit report detail-

Albert R. Weldon, Jr., is manager, university auditing, Yale University; Edward M. Parigian is region I director, Office of the Inspector General, Department of Health and Human Services (HHS); and Robert Forrester is a partner in the Boston office of Coopers & Lybrand. *This article is a follow-up to two articles that appeared in the October 1981* Business Officer: *"On-Line Auditing: Helping Minimize Financial Misunderstanding," by Philip Kropatkin of HHS and "On-Line Auditing: Should Universities Take the Step?" by Joseph S. Warner of Yale.*

Exhibit 1: Structure of Organization



ing weaknesses in the system and providing recommendations for improvement. This draft report is reviewed with the oversight committee and with selected university administrators. A plan for compliance testing is drafted and approved as well. After the review by the oversight committee, a formal audit report is issued to appropriate university personnel and to oversight committee members.

In the next quarter university auditing conducts transaction tests of compliance with the system. Transactions are selected for testing on either a statistical or a judgmental basis. The nature and extent of compliance testing depend on the results of the systems review. Disallowances are—and have been—corrected and refunded at the time of discovery. After the compliance review a draft report is prepared describing the results and the corrective action taken. This report and a plan for future testing of the system are reviewed with oversight committee members and selected university administrators, first in draft then in final form. In subsequent quarters transaction testing may continue depending on the results of the systems review and the initial compliance tests. At a minimum, university auditing performs a second transaction test for all systems within one year of the systems reviews to test implementation of corrective action.

At any given time, then, university auditing may be conducting preliminary reviews on some systems and transaction reviews on others. At the end of the year university auditing prepares an annual report summarizing all systems reviews and transaction tests. This report shows the status of implementation of corrective recommendations. It too is discussed with the oversight committee. The external auditors also report annually on any work they do as part of the financial statement audit, which supplements the internal audit.

Yale's approach has the following significant features:

1. Current transactions are audited when appropriate.

2. The university audit staff performs the audits.

3. A three-party oversight committee guides and directs the effort.

4. Yale's external auditors supplement the examination with work they perform during their annual financial statement audit.

5. Yale develops its own specially tailored audit programs to focus greater attention on the areas of potential risk.

6. The audit plan calls for an in-depth review of each system that controls sponsored projects. The audit cycle will take three years, and it is expected that university audit effort will amount to about 10,000 person-hours during this period.

The advantage of each feature is described below.

On-Line Concept. The concept of auditing current transactions was introduced by Philip Kropatkin in his October 1981 *Business Officer* article. At Yale the concept has been very successful and has provided a number of benefits:

1. Documentation is readily available, as are the people who process and can remember the details of the transactions.

2. System deficiencies are discovered and corrections made "on time" to prevent major problems. This usually results in periodic procedural refinements rather than in the major overhaul of systems.

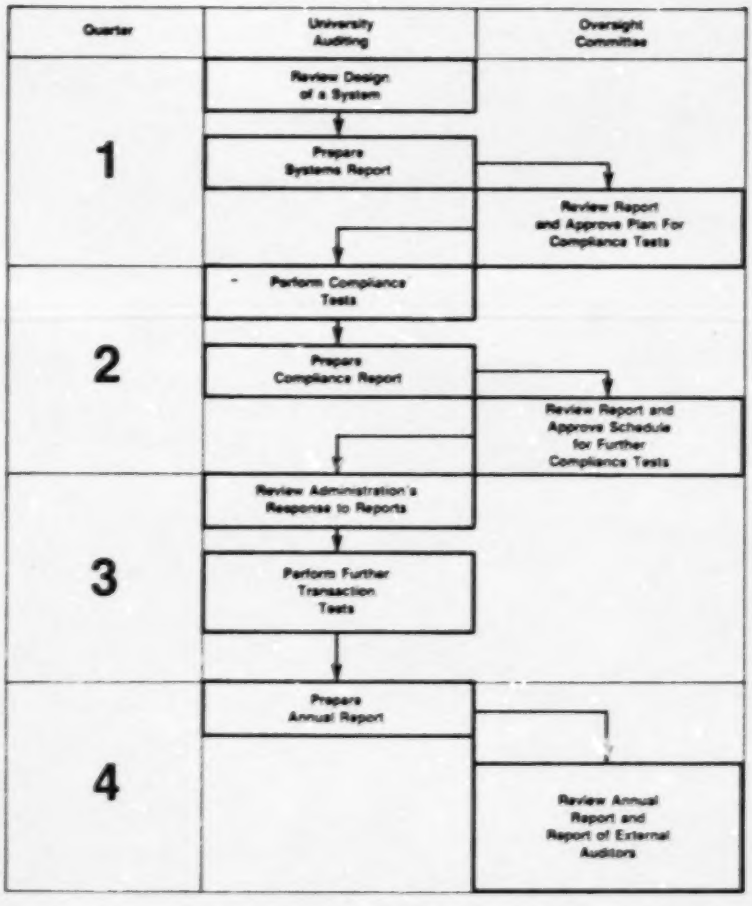
3. Responsibility for any system abuse can be easily assigned.

4. The schedule is flexible (see Exhibit 3) and allows the oversight committee or university auditing to emphasize any area of particular interest.

5. Resolution of prior years' audits has been completed, so Yale starts with a clean slate for the on-line audit, rather than having to apply current findings to prior years.

6. Finally, cost disallowances or errors are refunded or corrected when they are discovered. The em-

Exhibit 2: Annual On-Line Schedule



phasis of the internal audit reports, however, is on systems improvements and prospective changes, rather than on projection of past transactions. As a result the threat of extrapolation, which was of such concern to Joseph Warner in his 1981 *Business Officer* article, has been of little significance during the 18 months of the Yale audit.

Internal Auditors. Yale's university auditing department has taken full responsibility for planning and conducting the audit. Charged with this responsibility, rather than serving at the direction of the external auditors, university auditing participants have enjoyed excellent morale and professional development. The use of the internal auditors to perform the work also provides a number of other advantages:

1. Their on-site participation takes advantage of the flexibility of the approach described above. Questions can be answered, and transactions followed up on an immediate basis.

2. The university auditing team is developing experience with pertinent federal regulations. This experience will in time surpass that of external auditors for whom similar compliance audits may be only a byproduct of financial statement examination.

3. As a result the university auditing approach promises to be more efficient. Internal auditors already have an understanding of the systems at Yale, and they can direct their attention to known areas of concern and risk. They are familiar with the personnel involved and can consult with them effectively.

4. Knowledge gained during the audit process remains at Yale.

5. Internal audit, by its very nature, provides a more in-depth examination.

One drawback in the use of internal auditors is that they may lack a "global" perspective that the outside CPA can provide regarding policies and procedures in place at other institutions. Problems encountered during the audit might therefore be addressed in the context of a theoretical application of regulations and controls rather than on the basis of practical experience gained at other institutions. Participation on the committee by HHS's Office of the Inspector General (OIG) and the external audit firm, however, makes the situation less troublesome.

Oversight Committee. The oversight committee is perhaps the most valuable component of the coordinated on-line audit plan. Its membership includes Yale administrators and faculty members, national and regional representatives of OIG, and national and local representatives of Yale's public accounting firm. This body provides diverse knowledge, expertise, and experience and adds to the on-line audit as follows:

1. The committee provides direction and guidance in audit priorities and scope. During the first year of the audit plan, several changes in the original audit schedule were made at the suggestion of committee members.

2. Committee meetings offer a forum for communication and coordination among all three parties. (Development of the original audit plan was a coordinated effort among all representatives.) Outside the formal committee meetings, representatives of the public accounting firm advise university auditors on the form and content of particular recommendations, while representatives of the regional office of the inspector general review audit workpapers in detail and offer their guidance on interpretation of particular regulations.

3. The oversight committee also provides independence. Two members of the oversight committee—the external auditor and HHS—are "outsiders," and faculty members of the committee also have a most valuable, independent viewpoint of their own.

4. The committee includes those who have financial systems responsibilities (Yale administrators), the users of these financial systems (faculty members), and the monitors from the government and the external auditing firm. The diverse experience of the group allows Yale to implement compliance with regulations. At one meeting committee members reached agreement on the specific procedures and controls they would consider adequate for procurement of equipment at Yale. Without the external auditors' knowledge of procedures at other institutions, the OIG representatives' understanding of the potential for abuse, faculty members' familiarity with the details of the procurement process, and the administrators' feel for the practical considerations of system design and control, the internal auditors might

Exhibit 3: Systems Audited

Administrative Controls	Financial Controls
Methods and procedures concerned with operating efficiency and adherence to managerial policies	Procedures and records concerning safeguarding of assets and reliability of financial records
Program income	Invoice clearance and cash disbursements
Cash depositories and receipts	Financial reporting
Procurement	Account reporting
Proposal and acceptance	Payroll and salary distribution
Revision of financial plans	General accounting
Closeout, suspension, and termination	Cost transfers
Monitoring and reporting	
Program performance	**Indirect Costs**
Record retention	
Bonding and insurance	Grant and contract administration
Cost sharing	Grant and contract financial administration
Service centers and shared services	Depreciation and use allowance
Property management	Departmental administration
Employee benefits	Other indirect costs
	Indirect cost calculation

have suggested less appropriate applications of federal regulations and generally accepted standards for procurement.

5. The oversight committee also provides an opportunity for cooperative rather than adversarial relationships among the various parties. OIG's national representatives and the external auditors can discuss conceptual questions and suggest and test implementation strategies. This discussion has had a beneficial impact on A-110 audits nationwide.

As suggested by Warner in his 1981 *Business Officer* article, the success of any coordinated on-line audit plan depends on the participation of an active and interested oversight committee.

External Auditors. In addition to their role on the oversight committee, Yale's CPAs perform another valuable function that contributes to the success of the coordinated on-line audit plan. As part of their examination of the financial statements of the university, the external auditors review Yale's procedures and test the controls over financially significant systems of the university. Some of these audit procedures and control tests either fulfill or parallel the requirements of OMB Circular A-110. These include controls that relate to management information and accounting systems, research administration and accounting, direct charges to grants and contracts, application of indirect costs, funding mechanisms, and property management. After the close of the external audit, the CPAs provide the university and subsequently the oversight committee with a report that identifies the work performed in each area during the annual audit. The report also contains sections of the annual management letter that deals with these areas. This report is an integral part of the on-line audit plan, since it enables the internal auditors to focus on points of concern and to avoid duplication. In planning and conducting their own audit of the financial statements of the university, the external CPAs review, test, and rely on the more detailed work of the university auditing department, to the extent considered necessary under generally accepted auditing standards.

This coordinated A-110 approach enables the external auditor to add maximum value to the audit process. The partner and manager who serve on the oversight committee can deal with conceptual questions, while another partner and manager independently direct the team that audits the financial statements. The plan avoids the costly step of having the CPAs take responsibility for all the detailed A-110 work; they do, however, retain responsibility for those aspects of the audit that have a significant effect on Yale's financial statements.

Benefits in the First Year. In its first year, the on-line audit approach has taken a course that promises to achieve the benefits discussed by Kropatkin in 1981, while steering away from the pitfalls that gave Warner concern. Perhaps the greatest benefit, as described above, has been an open discussion of financial management issues among interested parties at an institution where these issues were more likely to have given rise in the past to debate. University auditors have developed an in-depth knowledge of federal regulations and compliance auditing procedures. They are now full-fledged members of the university's grant administration team and can consult with the faculty and administration on a growing number of related topics outside the traditional audit area.

The cost of the audit, though not insignificant, is in line with the level of federal funding at the university. When external auditors have performed similar examinations, they have found that their greatest cost risk was in seemingly endless follow-up on potential exceptions, in discussing the wording of audit reports that dealt with these exceptions, and in resolving the exceptions with federal authorities and the institution. These risks are not absent at Yale, of course; but in the flexible approach described above, resident representatives of the university auditing department can review other systems or other transactions while specific exceptions are researched. Their reports are less formal than those of the CPA, and therefore the wording is less important. Problems are solved before they recur, with the oversight committee providing a national perspective that allows immediate resolution. Finally, the on-line audit has given the government, the university, and the public accounting community an opportunity to dis-

Exhibit 4: GAO Standards

Organizational impairments. Auditors' independence can be affected by their place within the structure of the government entity to which they are assigned and also by whether they were auditing internally or auditing other entities.

Internal auditors. A federal, state, or local government auditor may be subject to policy direction from persons involved in the government management process. To help achieve maximum independence, the audit function or organization should report to the head or deputy head of the government entity and should be organizationally located outside the staff or line management function of the unit under audit.

Auditors should also be sufficiently removed from political pressures to ensure that they can conduct their audits objectively and can report conclusions objectively without fear of censure. Whenever feasible, they should be under a personnel system where compensation, training, job tenure, and advancement are based solely on merit.

If the above conditions are met and there are no personal or external impairments, the audit staff should be organizationally independent to audit internally and free to report objectively to top management. The main objective of an internal audit staff is to serve the entity. *Therefore, internal auditors may not be considered independent of the entity by third parties while auditing within their organization.* While the internal auditor may not be considered independent, the external auditor, in auditing the entity, should use the internal auditor's work to the extent feasible after appropriate tests are performed.

When organizationally independent internal auditors perform audits external to the government entity to which they are assigned, they may be considered independent of the audited entity and should be free to report the findings objectively.

Comptroller General of the United States, Standards for Audit of Governmental Organizations, Programs, Activities, and Functions, *1981 Revision, Pages 19-20.*

cuss auditing concepts as they are applied in a complex but structured audit environment. In a sense the on-line audit at Yale is a research project in itself.

The Future of the Project. Kropatkin, Warner, and others developed the on-line approach described in this article in response to an audit requirement originally set forth in Attachment F of Circular A-110. At the time the attachment was first effective, the requirement could be met either by internal or external auditors; the government had determined that a number of internal audit staffs (perhaps 100) at larger colleges and universities around the country were sufficiently competent and organizationally independent under the 1974 revision of the GAO standards to carry out audits of financial aid and, presumably, other federal programs.

In 1981, GAO revised its audit standards in a way that questioned the independence of internal auditors and consequently the acceptability of their reports (see Exhibit 4). Refinements of the A-110 guidelines (based in part on the results of pilot audits at Yale and 38 other universities) have (a) made more desirable a connection between A-110 procedures and the examination of the institution's financial statements and (b) played down the cyclical approach that supported Yale's three-year audit plan. Finally, a reallocation of audit resources by HHS will most likely make it impractical for the branch office of the inspector general to continue its current review of university audit's A-110 workpapers.

All these factors have prompted the authors and other participants to review the on-line concept and its application at Yale. The review suggests that the on-line concept can and should be preserved. In the authors' view and that of the HHS officials who have participated in the experiment, the independent oversight committee, the special report of the external auditors, and the reporting relationship of university auditing give the process a large measure of detachment and objectivity that may satisfy GAO requirements in a thorough and cost-effective fashion.

Relying on the work of university auditing in the context of the examination of the Yale financial statements taken as a whole, the external auditors can issue financial and internal control reports suggested by the draft audit guidelines. For the initial three-year period, the compliance report will continue to be issued in two parts: first, university auditing's detailed and summary reports; second, the annual special report in which the external auditors set forth procedures and findings from their annual examination related to federal projects.

At the end of the three-year experimental period, the university, the external auditors, and HHS plan to reassess the project, asking such questions as: Does the overall scope of the audit make sense? Should its emphasis be adjusted from one control objective or compliance requirement to another? Is a three-year cycle appropriate? Does the project still represent an optimum allocation of university external and government audit resources? This review should add value to the overall university audit department, as well as to the administration of federal projects.

The on-line concept described in this article has worked for Yale, a large, decentralized research university with substantial university auditing resources. It should be clear that in other situations extensive reliance on internal audit resources by independent auditors is possible to satisfy A-110 requirements and that the extensive use of internal auditors does not necessarily require the on-line concept. The single audit approach arose from questions about the allocation of audit resources. In addition to its benefits for the university, the experimental audit at Yale has demonstrated the importance of coordinating external, internal, and government auditing resources in total. ◆

"Excuse me, Officer. I'm an academic. Where am I?"

Drawing by Weber; 1981 The New Yorker Magazine, Inc.

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